AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Figures 4a and 4b.

Attachment: Replacement Drawing Sheet 1

REMARKS

This is in response to the Office Action mailed July 29, 2004. Claims 1-15 remain cancelled. Claims 16, 20, 21, 34, 43, 44, and 45 have been amended. Claim 19 has been cancelled. Claims 16-18 and 20-45 are currently pending.

Information Disclosure Statement Filed August 27, 2003

The Examiner has stated that the Information Disclosure Statement filed August 27, 2003 fails to comply with 37 CFR 1.98(a)(2) and (a)(3) because a copy of UK 1,434,832 and the non-patent documents Arbeitsgruppe Wirkerei and Wilkommen were not submitted and an explanation of the relevance of Arbeitsgruppe/Technikfelder was not filed.

Applicants believe that a copy of UK 1,434,832 and the non-patent document Wilkommen were submitted with the Information Disclosure Statement of August 27, 2003 but are submitting additional copies with this response. Applicants supplied an incomplete copy of the non-patent document Arbeitsgruppe Wirkerei and are sending a complete copy with this response. Applicants apologize for this oversight. On page 2 of the Information Disclosure Statement, Applicants stated that Arbeitsgruppe/Technikfelder provided at http://www.titv-greiz.de/deu/aguebers.htm was relevant as providing general information about spacer woven fabric or spacer knitted fabric. Applicants respectfully request that these references be considered by the Examiner.

Objections to the Drawings

The Examiner has objected to Figure 4 because it was not labeled separately in accordance with 37 CFR 1.84(u)(1,2) and the brief description of the drawings broadly described Figure 4 instead of Figure 4a and 4b. The drawing has been amended to separately label Figure 4 as Figure 4a and Figure 4b. Further, references to Figure 4 in the brief description of the

drawings and throughout the specification have been amended to reflect this change and now refer to Figures 4a and 4b. It is believed that the objections to Figure 4 have been corrected.

Objections to the Disclosure

The Examiner has objected to the disclosure because of omitted section headings and reference to the claims. The specification has been amended to include the section headings and reference to the claims. It is believed that the objections to the disclosure have been corrected.

Use of the Trademark VELCRO

The Examiner has pointed out the use of the trademark VELCRO in the disclosure. The specification has been amended to capitalize the trademark throughout and provide generic terminology. It is believed that this has been corrected.

Objection to the Hyperlink

The Examiner objected to the use of hyperlinks in the disclosure. Applicants have deleted reference to hyperlinks and believe that this has been corrected.

Objection to the Abstract

The Examiner has objected to the abstract as not being in the proper language and format and including implied language and miscellaneous text. The abstract has been amended to correct these objections. Specifically, on line 1, the phrase "Disclosed is a" has been deleted and replaced with "A" as the examiner suggested. Further, the miscellaneous text "(Fig. 5)" has been deleted.

Objection to Claim 34

The Examiner has objected to claim 34 as including the trademark VELCRO in the claim. The Examiner suggested replacing VELCRO with "hook and loop fastener" and the claim has been amended to include this change.

Rejections Under 35 U.S.C. § 112 Paragraph 1

The Examiner has rejected claim 29 under § 112 first paragraph as failing to comply with the written description requirement. Applicants respectfully traverse this rejection.

On page 6 of the original application, line 35 and continuing on to page 7 line 1, the application teaches a coating to help the rescue mat be pulled over a surface. The application teaches that this coating is "sealed, non-water-permeable, washable and readily capable of being disinfected." Further, in original claim six, now cancelled, the coating is characterized as "water-impermeable, washable and readily able to be disinfected as well as preferably, *air-permeable*" (emphasis added). The claims as filed in the original specification are part of the disclosure. Therefore, original claim 6 together with the disclosure on pages 6 and 7 describes the subject matter in claim 29 as to reasonable convey to one skilled in the art that the inventors had possession of the claimed invention at the time the application was filed. The specification has been amended on page 7, line 24 of the clean copy of the Substitute Specification to include the additional language in original claim 6. This is not new matter since it was included with the original specification.

Rejections Under 35 U.S.C. § 102(b)

The Examiner has rejected claims 16-18, 22-24, 26-28, 30, 33, 34, and 42-45 as anticipated by Hemphill. Applicants respectfully traverse this rejection.

Claims 16, 43, 44, and 45 have been amended to further define the substantially flat material as comprising a spacer woven fabric. As the Examiner stated, Hemphill does not disclose the feature of the material being a spacer woven fabric. Therefore, Hemphill cannot anticipate amended claims 16, 43, 44, and 45 or any dependent claims that depend from claims

16, 43, 44, and 45. Claim 19 has been cancelled. Claims 20 and 21 have been amended to refer back to claim 16.

Rejections Under 35 U.S.C. § 103(a)

Hemphill in View of Miller - The Examiner has rejected claims 19-21 under 35 USC § 103(a) as unpatentable over Hemphill in view of Miller stating that Miller shows a pediatric immobilization device having a substantially flat material of spacer woven fabric in Figures 1 and 2. Applicants respectfully traverse this rejection.

Claim 19 has been cancelled. Regarding claims 20 and 21, Applicants define "spacer woven fabric" on page 3 lines 6-9 of the clean copy of the Substitute Specification as "a material which has two fabric cover layers which are held at a spacing of a few millimeters by distance-maintaining bridge threads" (emphasis added). One embodiment, spacer knitted fabric, is shown in Figures 4a and 4b. A spacer woven fabric provides an advantage over a regular woven fabric in that it creates a cushioning effect which is desirable when using this material with the rescue mat of the present invention. Miller does not show in Figures 1 or 2, or disclose in the specification, a spacer woven fabric, or equivalent material, that meets this definition. Miller describes the cover (14) at column 3 line 65 to column 4 line 2 as "preferably constructed of a durable, washable material such as nylon, rayon or canvas. The selected cover material should be easy to clean and disinfect, and yet durable enough to withstand harsh treatment, either in the field or in the hospital." This description does not describe a spacer woven fabric as disclosed in the present application. Accordingly, a prima facie case of obviousness cannot be made because all claim limitations for claims 20-21, and specifically a spacer woven fabric, are not taught or suggested by Hemphill or Miller, either individually or in combination. This rejection also does

not apply to amended claims 16, 43, 44, and 45 and their dependent claims which include the element of spacer woven fabric.

Hemphill in View of Failor – The Examiner has rejected claim 25 as unpatentable over Hemphill in view of Failor. Applicants respectfully traverse this rejection. Claim 25 now ultimately refers back to claim 16 which includes the spacer woven fabric element which is not taught by Hemphill, Miller, or Failor. Accordingly, a prima facia case of obviousness cannot be made because all claim limitations for claim 25 are not taught or suggested by Hemphill, Miller, or Failor, either individually or in combination.

Hemphill – The Examiner has rejected claims 31 and 35-41 as unpatentable over Hemphill. Applicants respectfully traverse this rejection. Claims 31 and 35-41 now ultimately refer back to claim 16 which includes the spacer woven fabric element which is not taught by Hemphill. Accordingly, a prima facie case of obviousness cannot be made because all claim limitations for claims 31 and 35-41 are not taught or suggested by Hemphill.

Summary

Applicants respectfully disagree with the Examiner's characterization of the prior art references and what would have been obvious to one having ordinary skill in the art. In view of the above, each of the presently pending claims in this application is believed to be an immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	POST	Examiner:	T. MAYO
Serial No.:	10/649,153	Group Art Unit:	3671
Conf No.:	5019	Docket No.:	1810US01-EE
Filed:	August 27, 2003		
Title:	RESCUE UNDERLAY FOR MATTRESSES		

Marked Up Copy of Substitute Specification

Rescue underlay for mattresses

FIELD OF THE INVENTION

The invention relates to a rescue underlay for mattresses with the features of the introductory part of claim 1.

BACKGROUND

Rescue underlays for mattresses of the usual kind have a double function. On the one hand such a rescue underlay is, by its underlay mat, a mattress protective cover for pressure relief of the mattress at the underside. On the other hand, the rescue underlay serves in the event of a catastrophe for rapid evacuation of a reclining patient. This applies to hospitals, homes for the elderly, nursing wards, etc.

Rescue underlays of the usual kind are, as a precaution, kept in hand under mattresses in order in the case of a catastrophe to fix the reclining patient on the mattress to be lying down and to then be able to pull the mattress on the rescue underlay over the ground. A single person can then rescue a patient, whereas in the case of use of stretchers or the like at least two persons are required per rescued person.

The rescue underlay from which the invention proceeds (DE 88 14 414 U1) comprises an underlay mat of a reticular or gridlike woven fabric of plastic, to which a pull loop of a plastic woven fabric strip for pulling the underlay mat inclusive of mattress and patient is attached at one end. Patient securing belts, which have connecting elements at both ends for closing the patient securing belts, are attached to the longitudinal sides of the underlay mat. In the case of the previously explained prior art these connecting elements are simple loops; other prior art mentions ~~Velcro~~ VELCRO hook and loop connections (US 4 124 908 A) and quick-action clamping locks or quick release buckles (GB 1 434 832 A).

The known rescue underlays have already proved themselves in the respect that a patient lying on the mattress and secured and held by the patient securing belts under his cover can be drawn in problem-free manner over the ground by a helper by means of

the pull loops. Even pulling in stairwells has proved possible, so that such a rescue underlay in fact offers a considerable advantage in emergency situations.

It is already known to provide a rescue underlay of the conventional kind with additional, cushioning support wedges, particularly at the head end, at the foot end and in the middle region, which are arranged under the mattress and are to prevent slipping of the patient on the mattress (WO 00/74785 A1).

It has proved that the known rescue underlays for mattresses still present a need for improvement in handling.

SUMMARY OF THE INVENTION

The teaching of the present invention solves the previously outlined problem, in the case of a rescue underlay for mattresses with the features of the introductory part of claim 1, by the features of the characterising part of claim 1.

According to the invention the plastic flat material, which forms the rectangular underlay mat, is not simply a plastic woven fabric or plastic net material, but a flat material providing a spring travel. In other words, the underlay mat as such consists of a plastic material which itself has a certain cushioning function, because this material as such provides a spring travel, even if relatively small overall by comparison with the mattress. The spring constant of the plastic flat material will usually be substantially greater than the spring constant of the mattress itself. The underlay mat thus forms a relatively hard spring, where against the mattress forms a softer spring. This combination has proved to be advantageous for the transport problem present here.

Various materials can be used as plastic flat material providing a spring travel. Use can obviously be made of foam materials, air-bubble films or plastic materials which find use in foam mattresses. In that case, however, of particular significance is the fact that the requisite tensile strength has to be achieved in longitudinal direction of the underlay

mat. Further, certain safety features must be achieved like e.g. flame-resistance or the like.

Of particular significance, therefore, is a preferred embodiment of the rescue underlay according to the invention which is characterised in that the plastic flat material providing a spring travel is a spacer woven fabric or, in particular, a spacer knitted fabric. A spacer woven fabric is a material which has two fabric cover layers which are held at a spacing of a few millimetres by distance-maintaining bridge threads (information from the company Haufler Industrievertretungen ~~under www.haufler-iv.de/abstandsgewebehtm~~). Spacer knitted fabrics have textile outer surfaces of greater width of stitch link, the outer surfaces being connected by spacer threads and held at the desired distance. The spring characteristic of a spacer woven fabric or a spacer knitted fabric results from the spacer threads or bridge threads (data from Textilinstitut Greiz ~~under www.titv-greiz.deldoulagwirker.htm~~).

Further preferred refinements and developments moreover form the subject of further subclaims.

~~Claim 10~~ One embodiment relates to a specific way to secure the patient securing belts to the rescue underlay when they are not in use in a way enabling tearing off of the free ends if necessary.

~~Claim 11~~ Another embodiment, also a separate invention relating to the rescue underlay for mattresses, relates to a particular way to accommodate the patient securing belts when not in use. This is done in tunnel-like receptions preferably on the underside of the underlay mat as explained in this claim. Further subclaims related to this claim describe refinements.

Finally, it is explained that it is possible to permanently attach such rescue underlay to a mattress or even integrate a rescue underlay into a mattress. So part of the invention is a complete rescue mattress integrating the describe rescue underlay as well.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in more detail in the following by reference to a drawing illustrating merely a preferred example of embodiment. In the drawing

Fig. 1 shows, in a perspective illustration, a rescue underlay for a mattress, which is here illustrated with a patient lying thereon,

Fig. 2 shows an embodiment of a rescue underlay according to the invention,

Fig. 3 shows a head region of a rescue underlay according to Fig. 2,

Fig. 4a and Fig. 4b ~~shows~~ show a spacer knitted fabric as is preferably used as flat material providing a spring travel, in section,

Fig. 5 shows a second embodiment of a rescue underlay according to the invention in a plan view,

Fig. 6 shows a third embodiment in that a mattress with a rescue underlay according to the invention permanently affixed to it or integrated into it.

DETAILED DESCRIPTION OF THE INVENTION

The subject of the invention is a rescue underlay for mattresses as has been described in the general part of the description.

Fig. 1 shows a mattress 1 on which a patient 3, covered by a cover 2, lies. Disposed under the mattress 1 is a rescue underlay with a rectangular underlay mat 4 consisting of a plastic flat material which has a high tensile strength and is preferably substantially tear-proof. The underlay mat 4 has approximately the dimensions of the mattress 1. Obviously it is possible in principle for the underlay mat 4 to be somewhat larger or

somewhat smaller, particularly somewhat longer or somewhat shorter, than the mattress 1. However, it could also be imagined that there are different underlay mats 4 adapted to respectively differently sized mattresses 1.

Since in the field of hospitals, homes for the elderly and nursing homes the dimensions of mattresses 1 are largely uniform, it is usually possible to manage with an underlay mat 4 of a specific format.

The underlay mat 4 serves, for the mattress 1, initially as a mattress protective cover. To that extent the underlay mat 4 has a classic function. Beyond that, this underlay mat 4 also serves as a rescue means in emergency, as has been described in the general part of the description. For that purpose the rescue underlay is provided with pull loops 5, patient securing belts 6 and mattress retaining bands 7 attached to the underlay mat 4 (Fig. 2). The pull loops 5 are disposed directly adjacent to one another at the edge of the underlay mat 4 at both ends, so that the underlay mat 4 can be pulled in problem-free manner in both directions. The orientation of the underlay mat 4 under the mattress 1 thus does not matter.

Other pull aids, for example longer hand loops such as shown in US 5 150 487 A, can also be used instead of pull loops 5.

The patient securing belts 6 can also be arranged and connected in different mode and manner, the prior art showing a plurality of possibilities to which reference has already been made above.

Finally, it is recommended to also connect the underlay mat 4 of the rescue underlay in whatever manner to the mattress 1 itself. The illustrated mattress retaining bands 7 arranged at an angle in the corners correspond with that also realised in the state of the art from which the invention proceeds. Other prior art techniques show ~~Velcro~~ VELCRO hook and loop bands or additional belts.

Figs. 2 and 3 show the rescue underlay according to the invention in enlarged illustration and without mattress 1. [[Fig. 4 permits]] Figs. 4a and 4b permit recognition of a section through the utilised plastic flat material of the underlay mat 4. To that extent the teaching of the invention is now to the effect that the plastic flat material of the underlay mat 4 is a flat material providing a spring travel. The advantages of a flat material, which itself provides a spring travel, as underlay mat 4 reside in the fact that an additional spring travel is provided, thus an additional cushioning takes place which is felt to be very comfortable by the transported persons in the case of transport.

A number of alternatives have been mentioned in the general part of the description for the plastic flat material providing a spring travel. In particular, sponge materials, air-bubble films or plastic materials such as used for foam mattresses come to mind for this purpose. However, with consideration of the requisite high tensile strength of the plastic flat material the illustrated, preferred form of embodiment of the rescue underlay according to the invention exhibits, as plastic flat material, a spacer woven fabric or a spacer knitted fabric. Spacer woven fabrics and spacer knitted fabrics are known as such from the state of the art. Their use is of particular advantage in the illustrated rescue underlay. Reference may be made to the cited references mentioned in the general part of the description with regard to spacer woven fabrics and spacer knitted fabrics.

It is recommended, for the present purpose of use, that the spacer woven fabric or spacer knitted fabric has a thickness of 4 mm to 20 mm, preferably approximately 6 mm to approximately 14 mm, especially of 6 mm or of 10 mm or of 14 mm. With regard to a spacer woven fabric of 6 mm, reference may be made to a technical data sheet of Müller-Textil GmbH, Industriestrasse 8, 51674 Wiehl, for the article 5754-0600 with a thickness of 6.0 mm or for the article 5556-1000 for a material of the thickness of 10.0 mm.

Spacer knitted fabrics of Müller Textil GmbH have, for example, the technical data sheet for the article 5900-1000 for a material with 10 mm thickness. In general, refer-

ence may be made here to the web page of the company Müller Textil GmbH ~~under www. muellertextil.de~~.

Spacer knitted fabrics and spacer woven fabrics have become known, in particular, from polyester material. Polyester is also a selection of interest for other plastic materials which provide a spring travel.

Moreover, for the definition of the plastic flat material for the underlay mat 4 a flame-resistant or even fire-proof material is preferred. Moreover, it is considered an advantage that a non-decaying material is used. It is advisable that the material should not be hygroscopic, in order to keep the mattress dry. This is an advantage for cleaning of the rescue underlay, too. Apart from the above mentioned polyester material a polyamide fiber material, in particular an aramide fiber material (trade name Kevlar), a glass fiber material or a saran fiber material is a reasonable choice (the description of the different materials can be found in RÖMPP "Chemie", 10. edition 1996-1999, Georg Thieme Verlag Stuttgart, New York.

The embodiment illustrated in [[Fig. 4]] Figs. 4a and 4b moreover ~~shows~~ show that in accordance with preferred teaching of the invention the flat material providing a spring travel, in particular the spacer woven fabric or spacer knitted fabric, has at the underside a closed plastic film coating 8 preferably of polyurethane material or polyester material, which has a low sliding friction, preferably a lower sliding friction than the plastic flat material itself. In Fig. 4a) this coating is illustrated at the top and Fig. 4b) shows the normal cover layer at the top. In the illustrated embodiment there is provided a polyurethane coating which is sealed, non-water-permeable, washable and readily capable of being disinfected as well as preferably, air-permeable. The sliding friction of such a coating is so low that the rescue underlay can be easily pulled over smooth floor coverings. This facilitates transport of the patient by rescue personnel.

Different demands are imposed on the slidability of the rescue underlay. On a flat path, the lowest possible sliding friction shall be present. However, this can lead to the con-

sequence that on a sloping path or on stairs the rescue underlay can slip too quickly, which prejudices handling of the rescue underlay by the rescuer. According to a further and preferred teaching which is indicated in connection with Fig. 2, it can be provided that the plastic flat material has on the underside, especially on the film coating 8, at least an area with higher sliding friction which can as a braking surface 9. In the illustrated and preferred embodiment it is provided that the braking surface 9 is arranged in at least one end region of the underlay mat 4. Preferably a braking surface 9 is arranged at the underside of the underlay mat 4 in each end region of the underlay mat 4, particularly on the film coating 8.

The arrangement of the braking surface 9 at the indicated locations is based on the recognition that an end region of the underlay mat 4 during pulling of the rescue underlay by a rescuer is inevitably raised from the ground. The braking surface 9 here is ineffective. The other end region of the underlay mat 4 is less strongly loaded than the middle region of the underlay mat 4, because in the other end region either the head or the feet of the patient 3 is or are disposed according to the respective position of the patient 3. The heavier middle region of the patient 3, which ensures high friction by high force of pressing on the ground, is disposed therebetween. By raising the rescue underlay together with the mattress 1 and the patient 3 a rescuer on the stairs or on a sloping piece of ground can more strongly load the braking surface 9 at the opposite end in intended manner so that the braking effect increases. In particular, this is more or less automatically the case on stairs.

Fig. 3 moreover shows that in the illustrated example of embodiment it is further provided that an additional layer 10 of a flat material providing a spring travel, particularly a spacer woven fabric or a spacer knitted fabric, is fixedly attached, in particular sewn, glued and/or welded, to the underlay mat 4, preferably at the underside in an end region. The additional layer 10 of a flat material providing a spring travel is, in particular, similarly a spacer woven fabric or spacer knitted fabric, preferably such with a somewhat greater thickness.

Figs. 2 and 3 of the drawing allow particularly clear recognition that the illustrated rescue underlay is also particularly advantageously designed with respect to the furnishing of the patient securing belt 6 in the rest state. This is a different and indepent advantage of the present rescue underlay. It is provided, in particular, that the patient securing belts 6 are placed at the edge of the underlay mat 4 and connected at the free ends thereof with the material of the underlay mat 4 by stitching or by means of ~~Velcro~~ VELCRO hook and loop connections in a way enabling tearing off of the free ends if necessary. At the ends of the closure elements 11 the patient securing belts 6 are here fastened to the underlay mat 4 by a few stitches. Thus, the patient securing belts 6 are normally accommodated in virtually invisible manner under the mattress 1, but nevertheless can be quickly separated at the ends by tearing off from the underlay mat 4 in order to fix the patient 3.

Fig. 5 shows an embodiment of the rescue underlay with an underlay mat 4 providing in addition to the pull loops 5 at the edge of the underlay mat 4 a longer end pull loop 5' at the head end. Fig. 5 shows the hand pull loop 5' extended and, in dashed lines, in its non-used position. In this position it is inserted between the pull loops 5 under the underlay mat 4. By means of the extended hand pull loop 5' the head end underlay mat 4 can be managed by a rescuer for example when transporting a patient downstairs, without the rescuer necessarily bending to much.

Pull loops 5 should have a sufficient gripping width so that a rescuer with thick safety gloves can easily grip the pull loops 5.

Safety regulations in particular in Germany explain that safety relevant parts, in particular the closure elements 11 of the quick action and quick release buckles for the patient securing belts 6 should preferably be in blue colour.

The embodiment shown in Fig. 5 has a particular design in that the underlay mat 4, preferably on its underside is provided with tunnel-like receptions 12 accommodating the patient securing belts 6, wherein the patient securing belts 6 when not in use are po-

sitioned within the tunnel-like receptions 12 lengthwise, wherein one end of the respective patient securing belt 12, in particular a closure element 11 at the end of the patient securing belt 12, is protruding from the tunnel-like reception 12 such that it can be easily located and gripped in a rescue situation.

In this embodiment it is provided that the tunnel-like receptions 12 are positioned substantially transversely to the underlay mat 4. The embodiment shows that one tunnel-like reception 12 houses both parts of the patient securing belt 6. In a rescue situation the parts can be drawn from the tunnel-like reception 12 in opposite directions so that the closure elements 11 on the ends of the parts can be connected to secure the patient 3 on the mattress 1. However, an alternative is to house each part of a patient securing belt 6 in its own tunnel-like reception 12.

Further it is provided here that the tunnel-like receptions 12 are connected to the underlay mat 4 by sewing, in particular to the underside thereof. In the case that an additional layer is positioned on the underside of the plastic flat material to form a plastic film coating 8 it may be an option to use this plastic film coating 8 to form the tunnel-like receptions 12 on the underside of the underlay mat 4 by means of respective darts.

The embodiment of Fig. 5 discloses the quick connecting systems as closure elements 11 on the patient securing belts 6.

The embodiment of Fig. 5 further discloses that here the rescue underlay comprises altogether three patient securing belts 6 positioned in different distances from the head end of the underlay mat 4, wherein those distances preferably are about 50 cm, about 80 cm and about 120 cm.

In Fig. 5 the pull loops 5 are shown to be attached to the underlay mat 4 from the upper side. Of course, they can be attached to the underlay mat 4 from the underside as well if this is to be preferred from a handling standpoint. Such option is disclosed in Fig. 1.

Finally, there is provided a mattress characterised in that a rescue underlay, preferably according to any one of the claims 1 to 14 is permanently affixed to the mattress or is integrated into the mattress. This is then a kind of "rescue mattress" as such. This is indicated with the integrated mattress shown in Fig. 6.

WHAT IS CLAIMED IS:

~~Claims:~~

1. Rescue underlay for mattresses (1), comprising
a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a high tensile strength, the dimensions of which approximately correspond with the dimensions of the mattress (1),
pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands (7) or the like, all attached to the underlay mat (4),
characterised in that
the plastic flat material of the underlay mat (4) is a flat material that itself is providing a spring travel.

2. Rescue underlay according to claim 1, characterised in that the plastic flat material is a spacer woven fabric or, in particular, a spacer knitted fabric.

3. Rescue underlay according to claim 2, characterised in that the spacer woven fabric or spacer knitted fabric has a thickness of 4 mm to 20 mm, preferably of approximately 6 mm to approximately 14 mm, particularly of 6 mm or of 10 mm or of 14 mm.

4. Rescue underlay according to any one of the claims 1 to 3, characterised in that the plastic flat material is a flame-resistant or fire-proof material and/or a non-decaying material and/or a non-hygroscopic material and/or polyester material, polyamide fiber material, in particular aramide fiber material, glass fiber material or saran fiber material.

5. Rescue underlay according to any one of the claims 1 to 4, characterised in that the plastic flat material, particularly the spacer woven fabric or spacer knitted fabric, has at the underside a closed plastic film coating (8), preferably of polyurethane material or of polyester material which has a low sliding friction, preferably a lower sliding friction than the plastic flat material itself.

6. Rescue underlay according to claim 5, characterised in that the film coating (8) is water-impermeable, washable and readily able to be disinfected as well as, preferably, air-permeable.

7. Rescue underlay according to any one of the claims 1 to 6, characterised in that the plastic flat material has on the underside, particularly on the film coating (8), at least one area with higher sliding friction which optionally acts as a braking surface (9).

8. Rescue underlay according to claim 7, characterised in that the braking surface (9) is arranged in at least one end region of the underlay mat (4).

9. Rescue underlay according to any one of the claims 1 to 8, characterised in that an additional layer (10) of a plastic flat material providing a spring travel, particularly a spacer woven fabric or a spacer knitted fabric, is fixedly attached, particularly sewn, glued and/or welded, to the underlay mat (4), preferably at the underside, in an end region thereof.

10. Rescue underlay for mattresses (1), comprising
a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a high tensile strength, the dimensions of which approximately correspond with the dimensions of the mattress (1),
pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands (7) or the like, all attached to the underlay mat (4),
particularly according to any one of the claims 1 to 9,
characterised in that
the patient securing belts (6) are placed at the edge of the underlay mat (4) and are connected at the free ends thereof with the material of the underlay mat (4) by sewing or by means of ~~Velcro~~ VELCRO hook and loop connections in a way enabling tearing off of the free ends if necessary.

11. Rescue underlay for mattresses (1), comprising

a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a high tensile strength, the dimensions of which approximately correspond with the dimensions of the mattress (1),
pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands (7) or the like, all attached to the underlay mat (4),
particularly according to any one of the claims 1 to 9,
characterised in that
the underlay mat (4), preferably on its underside, is provided with tunnel-like receptions (12) accommodating the patient securing belts (6), wherein the patient securing belts (6) when not in use are positioned within the tunnel-like receptions (12) lengthwise, wherein one end of the respective patient securing belt (12), in particular a closure element (11) at the end of the patient securing belt (12), is protruding from the tunnel-like reception (12) such that it can be easily located and gripped in a rescue situation.

12. Rescue underlay according to claim 11, characterised in that the tunnel-like receptions (12) are positioned substantially transversely to the underlay mat (4).

13. Rescue underlay according to claim 11 or claim 12, characterised in that the tunnel-like receptions (12) are connected to the underlay mat (4) by sewing, in particular to the underside thereof.

14. Rescue underlay according to any one of the claims 1 to 13, characterised in that the rescue underlay comprises altogether three patient securing belts (6) positioned in different distances from the head end of the underlay mat (4), wherein those distances preferably are about 50 cm, about 80 cm and about 120 cm.

15. Mattress characterised in that a rescue underlay, preferably a rescue underlay according to any one of the claims 1 to 14, is permanently affixed to the mattress or is integrated into the mattress.

ABSTRACT

~~Abstract~~

~~Disclosed is a~~ A rescue underlay for mattresses (1), comprising a substantially rectangular underlay mat (4) consisting of a plastic flat material which has a high tensile strength, the dimensions of which approximately correspond with the dimensions of the mattress (1), pull loops (5) or the like, patient securing belts (6) and, optionally, mattress retaining bands (7) or the like, all attached to the underlay mat (4). This particular rescue underlay has an underlay mat 4 which has a flat material that itself is providing a spring travel. In a preferred embodiment the plastic flat material of the underlay mat 4 is a spacer woven fabric or, in particular, a spacer knitted fabric. A mattress can be separately combined with such rescue underlay or can even be integrated with a rescue underlay to form a rescue mattress.

~~(Fig. 5)~~